

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
7 October 2004 (07.10.2004)

PCT

(10) International Publication Number
WO 2004/086795 A3

(51) International Patent Classification⁷: **H04Q 7/36**

(21) International Application Number:
PCT/EP2004/050245

(22) International Filing Date: 3 March 2004 (03.03.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0307153.7 28 March 2003 (28.03.2003) GB

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

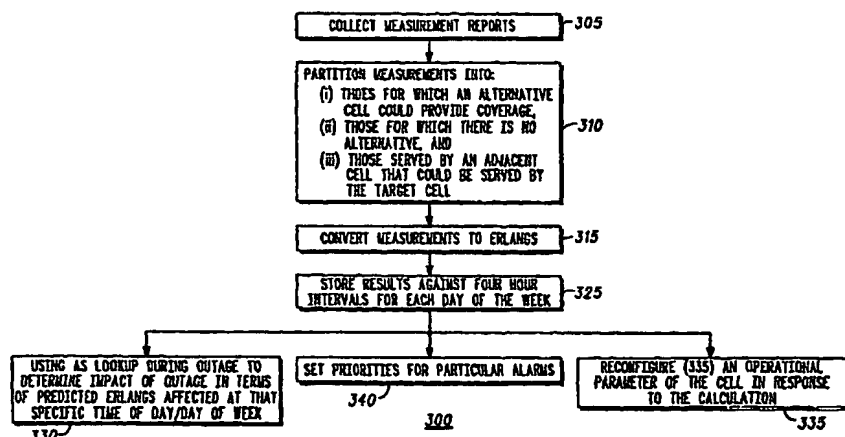
Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
23 December 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD FOR DETERMINING A COVERAGE AREA IN A CELLULAR COMMUNICATION SYSTEM



(57) Abstract: A method (300) determines a per-cell coverage area in a cellular communication system that comprises multiple cells. The method comprises measuring (305) one or more parameters relating to one or more operations of a first cell in a cellular communication system. The method includes calculating (320) a degree of coverage overlap from a number of measurements, preferably by comparing a number of first measurements relating to a location that is uniquely served, with a number of second measurements that can be served by a plurality of serving communication units. In this manner,

it is possible to determine an amount of overlapping coverage area based on real network measurements rather than inaccurate predicted data that has been traditionally employed. Preferably, the measurements are converted to Erlangs to provide a coverage overlap based on subscriber traffic. A communication system (100) and a communication unit (146) are also provided.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2004/050245

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 H04Q7/36		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC 7 H04Q H04W		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data, PAJ, INSPEC		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 431 956 A (MOTOROLA INC) 12 June 1991 (1991-06-12) column 3, line 8 - line 29 column 4, line 56 - column 5, line 11 column 5, line 42 - column 7, line 46 -----	1, 10-12
A	GB 2 356 320 A (MOTOROLA LTD) 16 May 2001 (2001-05-16) page 2, line 32 - page 9, line 29; figures 6-8 ----- <div style="text-align: center;">-/--</div>	1, 10-12
<div style="display: flex; justify-content: space-between;"> <input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in annex. </div>		
<div style="display: flex;"> <div style="flex: 1;"> <p>* Special categories of cited documents:</p> <p>*A* document defining the general state of the art which is not considered to be of particular relevance</p> <p>*E* earlier document but published on or after the international filing date</p> <p>*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>*O* document referring to an oral disclosure, use, exhibition or other means</p> <p>*P* document published prior to the international filing date but later than the priority date claimed</p> </div> <div style="flex: 1;"> <p>*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>*G* document member of the same patent family</p> </div> </div>		
Date of the actual completion of the international search <div style="text-align: center;">27 October 2004</div>		Date of mailing of the international search report <div style="text-align: center;">11/11/2004</div>
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Authorized officer <div style="text-align: center;">Tsapelis, A</div>

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International Application No
PCT/EP2004/050245

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>ICHITSUBO S ET AL: "MICROCELL AUTOMATIC PROPAGATION MEASURING SYSTEM AND SERVICE-AREA EVALUATION" WIRELESS PERSONAL COMMUNICATIONS, KLUWER ACADEMIC PUBLISHERS, NL, vol. 7, no. 1, 1 May 1998 (1998-05-01), pages 41-49, XP000750751 ISSN: 0929-6212 paragraph 5 - page 49</p>	1,10-12

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP2004/050245

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0431956	A	12-06-1991	US 5023900 A	11-06-1991
			EP 0431956 A2	12-06-1991
			US 5095500 A	10-03-1992
<hr/>				
GB 2356320	A	16-05-2001	NONE	
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